

## STATEMENT OF WORK

### Background:

INL was requested by the National Anti-Corruption Bureau of Ukraine (NABU), to assist them in purchasing forensic software and renew existing pieces. The NABU established its own digital forensic facility in 2015. Government of the UK and the US provided aid to equip the lab with basic and advanced forensic tools and software in 2016-2018. So far the lab consists of 4 examiners and a manager. There are plans in staff increase. Advanced forensic software will be used for conducting forensic examinations of seized digital media by NABU examiners and investigators at the forensic facility as well as during searches onsite.

**Work to be done.** The vendor is required to meet specs described below. The price should also include delivery cost to Kyiv city.

**VAT policy:** This is a technical assistance Project registered by Ministry of Economic Development and Trade of Ukraine. The offers, if applicable, may be submitted without VAT. The copy of registration card of the project and procurement plan will be provided upon request.

**Delivery:** Delivery of all items should not exceed more than 30 working days after contract signed.

### Software

No	Project characteristics	Type	Quantity	Price total, USD
1.	X-Ways Forensics, Perpetual license with access to updates for 3 years	New Software	4	
2.	X-Ways Forensics Renewal, till 2022 (co-terming with newly bought 4 (four) licenses X-Ways Forensics)	Software Renewal	1	
3.	X-Ways Forensics Renewal, till 2022 (co-terming with newly bought 4 (four) licenses X-Ways Forensics)	Software Renewal	1	
4.	X-Ways Forensics Renewal, till 2022 (co-terming with newly bought 4 (four) licenses X-Ways Forensics)	Software Renewal	5	
5.	ACELab PC-3000 UDMA + RAID Renewal (5-year support and updates renewal)	Software Renewal	1	
6.	ACELab PC-3000 SSD (PC-3000 UDMA UDMA + RAID Upgrade) with 5-year support and updates renewal	Software Upgrade & Renewal	1	
7.	ACELab PC-3000 Flash Renewal (5-year support and updates renewal)	Software Renewal	1	
8.	UFS Explorer Professional Recovery / Corporate License with 3-years support and updates renewal	New Software	1	



# 1. X-Ways Forensics, Perpetual license with access to updates for 3 years (BRAND NAME INCLUDED)

Quantity: 4 (four) licenses

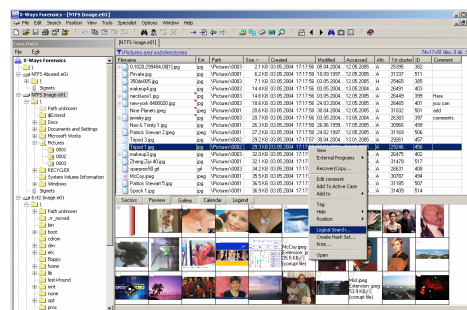
## SPECIFICATIONS

X-Ways Forensics is an advanced work environment for computer forensic examiners. Runs under Windows XP/2003/Vista/2008/7/8/8.1/2012/10\*, 32 Bit/64 Bit, standard/PE/FE. X-Ways Forensics is more efficient to use after a while, by far not as resource-hungry, often runs much faster, finds deleted files and search hits that the competitors will miss, offers many features that the others lack comes at a fraction of the cost, does not have any ridiculous hardware requirements, does not depend on setting up a complex database, etc. X-Ways Forensics is fully portable and runs off a USB stick on any given Windows system without installation if you want.

X-Ways Software Technology AG is a business incorporated under the laws of the Federal Republic of Germany as a stock corporation. X-Ways is the leading developer and supplier of computer forensics software outside of the US. The software is used for computer forensics, electronic discovery, data recovery, low-level data processing, and IT security.

Main products WinHex and its forensic edition X-Ways Forensics have more than 35,000 registered users all over the world, including home computer enthusiasts as well as professionals in all kinds of businesses, public administration, education, U.S. federal law enforcement, government and intelligence agencies, and in the military.

More info: on <http://www.x-ways.net/corporate/index-m.html>



## MAIN SPECIFICATIONS

Features support	<ul style="list-style-type: none"> <li>• Disk cloning and imaging</li> <li>• Ability to read partitioning and file system structures inside raw (.dd) image files, ISO, VHD and VMDK images</li> <li>• Complete access to disks, RAID's, and images more than 2 TB in size (more than 232 sectors) with sector sizes up to 8 KB</li> <li>• Built-in interpretation of JBOD, RAID 0, RAID 5, RAID 5EE, and RAID 6 systems, Linux software RAID's, Windows dynamic disks, and LVM2</li> <li>• Automatic identification of lost/deleted partitions</li> <li>• Native support for FAT12, FAT16, FAT32, exFAT, TFAT, NTFS, Ext2, Ext3, Ext4, Next3®, CDFS/ISO9660/Joliet, UDF</li> <li>• Superimposition of sectors, e.g. with corrected partition tables or file system data structures to parse file systems completely despite data corruption, without altering the original disk or image</li> <li>• Access to logical memory of running processes</li> <li>• Various data recovery techniques, lightning fast and powerful file carving</li> <li>• Well maintained file header signature database based on GREP</li> </ul>
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	<p>notation</p> <ul style="list-style-type: none"> <li>• Data interpreter, knowing 20 variable types</li> <li>• Viewing and editing binary data structures using templates</li> <li>• Hard disk cleansing to produce forensically sterile media</li> <li>• Gathering slack space, free space, inter-partition space, and generic text from drives and images</li> <li>• File and directory catalog creation for all computer media</li> <li>• Easy detection of and access to NTFS alternate data streams (ADS)</li> <li>• Mass hash calculation for files (Adler32, CRC32, MD4, ed2k, MD5, SHA-1, SHA-256, RipeMD-128, RipeMD-160, Tiger-128, Tiger-16, Tiger-192, TigerTree, ...)</li> <li>• Lightning fast powerful physical and logical search capabilities for many search terms at the same time</li> <li>• Recursive view of all existing and deleted files in all subdirectories</li> <li>• Automatic coloring for the structure of FILE records in NTFS</li> <li>• Bookmarks/annotations</li> <li>• Runs under Windows FE, the forensically sound bootable Windows environment, e.g. for triage/preview, with limitations</li> <li>• Support for high DPI settings in Windows</li> <li>• Ability to analyze remote computers in conjunction with F-Response</li> </ul>
<b>License</b>	perpetual license, for long term use, dongle-based
<b>Dongle options</b>	<b>4 network dongles × 1 license on each</b>
<b>Software Renewal</b>	36 months (3-years)

Reference: <http://www.x-ways.net/order.html>

**2. X-Ways Forensics Renewal, till 2022**  
**(co-terming with newly bought 4 (four) licenses X-Ways Forensics)**  
**(BRAND NAME INCLUDED)**

**Description:**

The most part of work is done by the examiners in the digital forensic lab of the NABU on loose media that were seized during searches. As a main tool for examination X-Ways Forensics software is used.

X-Ways Forensics is an advanced work environment for computer forensic examiners. Runs under Windows XP/2003/Vista/2008/7/8/8.1/2012/10\*, 32 Bit/64 Bit, standard/PE/FE. X-Ways Forensics is more efficient to use after a while, by far not as resource-hungry, often runs much faster, finds deleted files and search hits that the competitors will miss, offers many features that the others lack comes at a fraction of the cost, does not have any ridiculous hardware requirements, does not depend on setting up a complex database, etc. X-Ways Forensics is fully portable and runs off a USB stick on any given Windows system without installation.

Software license is due to expire in 2019 (20DE 9670). Once the license expires, the software can continue to be used. However, software updates that are released after the expiration date cannot be applied. Therefore, license is need to be renewed till 2022 (co-terming with newly bought 4 (four) licenses X-Ways Forensics).

**License / dongle numbers:** 20DE 9670

**E-mail:** forensic.lab@nabu.gov.ua

**Renewal period:** access to updates till 2022 (co-terming with newly bought 4 (four) licenses X-Ways Forensics)

**Quantity:** 1 (one)

**Reference:** <http://www.x-ways.net/order.html>

**3. X-Ways Forensics Renewal, till 2022**  
**(co-terming with newly bought 4 (four) licenses X-Ways Forensics)**  
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Software license is due to expire in 2021 (D2B4 3581). Once the license expires, the software can continue to be used. However, software updates that are released after the expiration date cannot be applied. Therefore, license is need to be renewed till 2022 (co-terming with newly bought 4 (four) licenses X-Ways Forensics).

**License / dongle numbers:** D2B4 3581

**E-mail:** forensic.lab@nabu.gov.ua

**Renewal period:** access to updates till 2022 (co-terming with newly bought 4 (four) licenses X-Ways Forensics)

**Quantity:** 1 (one)

**Reference:** <http://www.x-ways.net/order.html>

**4. X-Ways Forensics Renewal, till 2022**  
**(co-terming with newly bought 4 (four) licenses X-Ways Forensics)**  
**(BRAND NAME INCLUDED)**

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Software license is due to expire in 2020 (5F66 A48F, 47E6 A99F, 4766 A39F, 6AE6 A197, 7BE6 AB9F). Once the license expires, the software can continue to be used. However, software updates that are released after the expiration date cannot be applied. Therefore, license is need to be renewed till 2022 (co-terming with newly bought 4 (four) licenses X-Ways Forensics).

**License / dongle numbers:** 5F66 A48F, 47E6 A99F, 4766 A39F, 6AE6 A197, 7BE6 AB9F

**E-mail:** forensic.lab@nabu.gov.ua

**Renewal period:** access to updates till 2022 (co-terming with newly bought 4 (four) licenses X-Ways Forensics)

**Quantity:** 5 (five)

**Reference:** <http://www.x-ways.net/order.html>

**5. ACELab PC-3000 UDMA + RAID Renewal  
(5-year support and updates renewal)**



**(BRAND NAME INCLUDED)**

**Description:**

The PC-3000 UDMA Professional System is a hardware-software solution for diagnosing, repairing and recovering data from damaged HDD based on SATA (Serial ATA) and ATA (IDE) interfaces for numerous vendors (Seagate, Western Digital, Fujitsu, Samsung, Maxtor, Quantum, IBM (HGST), HITACHI, TOSHIBA), for various capacities (from 500MB to 8 TB), for file systems FAT, exFAT, NTFS, HFS+, APFS, EXT2/3/4, XFS, ReiserFS, BtrFS, VMFS, UFS1/2, ZFS, DHF4.1, WFS0.x (for video recorders) and virtual machine images, and various form factors: 3.5" - desktop drives, 2.5" and 1.8" - laptop drives. The PC-3000 UDMA Professional System consists of PC-3000 UDMA hardware-software and Data Extractor UDMA software.

The NABU has been using PC-3000 UDMA + RAID as a tool to conduct forensic examinations of broken hard drives. Software license has been expired in 2018.

**License / device number:** 009244

**E-mail:** forensic.lab@nabu.gov.ua

**Renewal period:** 5 years

**Quantity:** 1 (one)

**Reference:** <https://www.acelaboratory.com/UDMARaidSystem>



**6. ACELab PC-3000 SSD (PC-3000 UDMA UDMA + RAID Upgrade)  
with 5-year support and updates renewal  
(BRAND NAME INCLUDED)**



**Description:**

The PC-3000 SSD Software System operates in tandem with PC-3000 UDMA and it is intended for SSD repair and diagnosis and for data recovery from SSDs with SATA, PATA, mSATA, and M.2 (NGFF) interfaces and the capacity from 32 GB to 2 Tb produced by different manufacturers, such as OCZ, Corsair, Crucial, RunCore, A-DATA, G.Skill, Micron, Plextor, Intel, Samsung, Seagate, SanDisk, Kingston and others.

The PC-3000 SSD contains a set of specialized utilities for working with solid-state drives. This set includes the Universal Utility for diagnosing any SSD based on the ATA-8 specification (both currently existing models and those that will be manufactured in future) and the Active Utilities (Special Utilities) intended for working with a particular drive model in factory mode. It enables to deeply diagnose SSDs, to perform service operations, to re-write the drive's microcode, to get direct access to memory chips, to carry out low-level formatting blocking the damaged cells and placing their addresses into the defect table, and to perform many other useful operations.

The NABU has been using PC-3000 UDMA as a tool to conduct forensic examinations of broken hard drives. PC-3000 SSD upgrade is needed to extend PC-3000 UDMA functionality to be able to recover data from SSD.

**Reference:** <https://www.acelaboratory.com/pc3000-SSD.php>

<b>Brand name</b>	Acelab PC-3000 SSD
<b>Features</b>	Repair functions: <ul style="list-style-type: none"> <li>• verify and restore the SSD's service information</li> <li>• read and write the content of the SSD's ROM</li> <li>• load the microcode into the drive's RAM</li> <li>• emulate the translator operation in order to get access to user data</li> <li>• view the password and reset the password that was earlier set on an SSD</li> <li>• turn off background processes in an SSD to prevent data damage</li> <li>• provide direct access to the content of memory chips (it makes unsoldering unnecessary)</li> <li>• work with the Data Extractor</li> </ul> Data recovery functions Service and diagnostic functions
<b>Procurement type</b>	Upgrade & Renewal
<b>Compatibility with hardware</b>	PC-3000 UDMA № 009244
<b>E-mail</b>	forensic.lab@nabu.gov.ua
<b>Compatibility with</b>	Data Extractor UDMA (RAID Edition)

<b>software</b>	
<b>Renewal term</b>	5 years
<b>Usage territory</b>	Ukraine

**7. ACELab PC-3000 Flash Renewal**  
**(5-year support and updates renewal)**  
**(BRAND NAME INCLUDED)**



**Description:**

The PC-3000 Flash is a hardware-software system intended for recovering data from NAND based devices in such cases where there is no access through the authorized drive interface:

- UFD (USB Flash Drive)
- SD (Secure Digital Card)
- CF (Compact Flash)
- micro SD (micro Secure Digital Card)
- MS (Memory Stick)
- xD
- Monolithic Flash Devices
- MMC (Multi Media Card)
- Voice Recorder (dictaphone)
- iPhone 2G, 3G, 3GS (without hardware encryption)

The NABU has been using PC-3000 Flash as a tool to conduct forensic examinations of devices and media that use flash memory for data store. Software license has been expired.

**License / device number:** 004713

**E-mail:** forensic.lab@nabu.gov.ua

**Renewal period:** 5 years

**Quantity:** 1 (one)

**Reference:** <https://www.acelaboratory.com/pc3000flash.php>

**8. UFS Explorer Professional Recovery,  
Corporate License with 3-years support and updates renewal  
(BRAND NAME INCLUDED)**

**Quantity: 1 (one) license**



**BRAND JUSTIFICATION**

The NABU examiners use general forensic tool for data recovery purposes. They support general issues, but not dedicated like sophisticated files systems or hard drive combinations like rare RAID builds. The software UFS Explorer Professional Recovery allows to extend the existing capabilities of the forensic lab in data recovery because of the wide range of recovery functions. Other reason for brand name purchase that the software piece is compatible with another tool that is already in use in the lab - ACELab UDMA + RAID. The combined tool kit builds a strong support for cases where data need to be recovered.

**SPECIFICATIONS**

UFS Explorer Professional Recovery is an advanced data recovery software application created to be of use for data recovery professionals and technical specialists.

Augmented with thorough data structure analysis and full-scaled data recovery algorithms, the software is capable of solving even the most complicated data recovery tasks. An embedded RAID Builder mechanism allows building RAID of different levels, including nested ones and custom RAID configurations, while a set of decryption techniques enables data recovery from encrypted storages utilizing full-disk encryption, BitLocker, LUKS, Apple FileVault 2, eCryptFS, etc. The software can be installed on several operating systems – Microsoft Windows, Apple macOS and Linux and supports a wide range of storages, including virtual machines of different vendors, RAID-based NAS, SAN, Drobo BeyondRAID, RAID-Z, and various file systems applied on them.

UFS Explorer Professional Recovery is adjusted to work with file systems on disk images, virtual disks, RAID storages, NAS, hard drives, USB flash drives, memory cards, etc. without the need for prior scanning.

<b>Brand name</b>	UFS Explorer Professional Recovery
<b>Supported host operating systems</b>	Microsoft Windows: Windows XP with Service Pack 3 and later Apple macOS: version 10.7 and above Linux: Debian Linux 6.0 (or compatible) and above
<b>Supported host computer architectures</b>	Intel Architecture, 32-bit (IA-32, x86) AMD64 (x86-64)
<b>Supported file systems</b>	Data access and advanced recovery: Windows: NTFS, FAT, FAT32, exFAT, ReFS/ReFS3 macOS: HFS+, APFS Linux: Ext2, Ext3, Ext4, XFS, Extended format XFS, JFS, ReiserFS, UFS, UFS2, Adaptec UFS, big-endian UFS, Btrfs BSD/Solaris: ZFS volumes VMware: VMFS, VMFS6

	<p>Data access only:</p> <p>macOS: HFS;</p> <p>Novell: NWFS, NSS.</p>
<b>Recovery from complex RAID storages</b>	<p>Automatic recognition of known RAID metadata, saving and editing RAID configurations</p> <p>Automatic reconstruction of mdadm, LVM, Apple Software RAID, Intel Matrix, etc.</p> <p>Support of most popular standard RAID patterns for RAID 0, RAID 1E, RAID 3, RAID 5, RAID 6, RAID 7, etc.</p> <p>RAID-on-RAID support: RAID level 10, 50, 60, 50E, etc.</p> <p>Support of custom RAID patterns via RDL or Runtime VIM</p> <p>Support of “stripe”-volumes with ZFS and RAID-Z (RAID-Z, RAID-Z2, RAID-Z3)</p> <p>Adaptive reconstruction of RAID 5, RAID 6, RAID 5E, RAID 1, RAID 10, RAID 0+1 and nested RAID (levels 50, 51, 60, 61, etc.) using maps of bad sectors and in case of presence of defects (reading errors)</p> <p>RAID assembly from virtual disks</p> <p>Support of Drobo Beyond RAID</p>
<b>Supported encryption techniques</b>	<p>Full-disk encryption</p> <p>LUKS encryption</p> <p>Apple FileVault 2 encryption</p> <p>Encryption of Apple APFS volumes</p> <p>File system conversion (eCryptFS)</p> <p>BitLocker encryption</p>
<b>Supported virtual technologies</b>	<p>VMware VMDK, Hyper-V VHD/VHDX, QEMU/XEN QCOW/QCOW2, VirtualBox VDI, Apple DMG, Paralles, EnCase E01 and Ex01 non-encrypted files, simple disk images</p> <p>Internal sparse format</p> <p>Support of drive as a disk image (for XEN and others)</p> <p>Synology Sparse iSCSI</p> <p>Multi-level virtual storages (disk on disk)</p> <p>Custom “virtual image” files of Runtime Software</p> <p>R-Studio image files (RDR file format)</p> <p>Dynamic definition of virtual bad blocks on disk images through recognition of a given pattern</p>
<b>Supported technologies</b>	<p>Full support:</p> <p>Logical Disk Manager, MS Storage Spaces, Apple Core Storage, LVM thin provisioning, MDADM, NTFS and ReFS volume deduplication</p> <p>Recognition:</p> <p>Providing a partition table, information about Spans and Stripes of LVM2, AIX LVM, HP-UX LVM, Apple Software RAID</p> <p>Giving a partition structure for MBR, Apple Partition Map, BSD/Adaptec/Solaris/Unix Slice Map, GPT, Novel, Intel Matrix</p>

	Drobo volumes, HP EVA, HP LeftHand, Symphony SAN
<b>Supplementary features</b>	<p>Instruments for work with damaged disks: Defining damaged regions using bad sector maps created by ACE Lab software</p> <p>Tools for low-level data analysis:</p> <p>Hexadecimal preview of files, drives and partitions</p> <p>Hexadecimal editing of individual drives</p> <p>Field highlighting</p> <p>Data interpreter</p> <p>Parity calculator</p> <p>data comparison, parallel search tools</p> <p>Bitwise "exclusive OR" (XOR) function</p>
<b>Renewal period</b>	3 years
<b>License type</b>	Corporate License

Reference: <https://www.ufsexplorer.com/ufs-explorer-professional-recovery.php?lang=eng>